



Docket No.: 7682-045-999
Serial No.: 09/161,122
Inventor(s): Jin et al.
Title: Recombinant RSV Expression
Systems and Vaccines

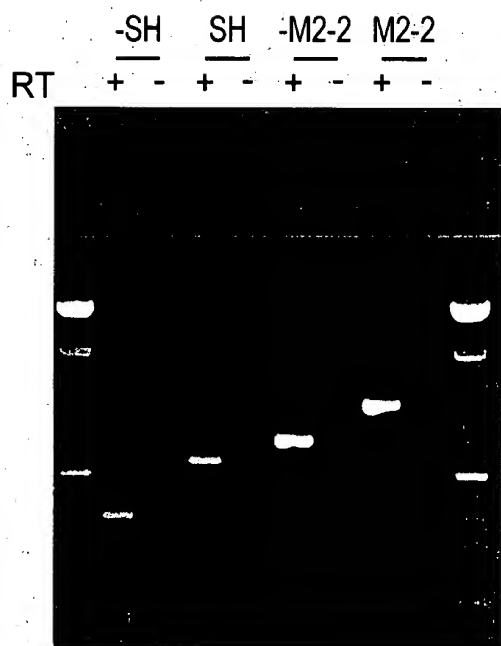


FIG.12A

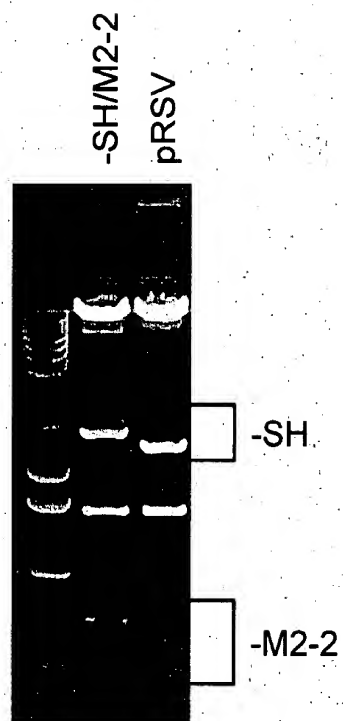


FIG.12B



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MDPIINGNSANVYLT DSYLKGVISFSECNA LGSYIFNGPYLKNDY TNLISRQNPLIEHMN LKKNITQSLISKYH 75
KGEIKLEEPTYFQSL LMTYKSMTSSEQIAT TNLKKIIRRAIEIS DVKVYAILNKLGLKE KDKIKSNNGQEDENS 150
VITTIKDDILSAVK DNQSHLKADKNHSTK QRDITIKTTLKKLMC SMQPPSWLIHWFNL YTKLNNILTQYRSNE 225
VKNHGFTLIDNQTLS GFQFILNQYGCIVYH KELKRITVTYVNOQL TWKDISLSRLNVCLI TWISNCLNTLNKSLG 300
LRCGFNNVILTQLFL YGDCILKLFHNEGFI IIEKEVEGFMSLILN IITEEDQFKREYNSM LNNITDAANKAQNL 375
LSRVCHTLLDKTVSD NIINGRWIILLSKFL KLIKLAGDNNLNLNLS ELYFLFRIFGHPMD ERQAMDAVKINCNET 450
KFYLLSSLSMLRGAF IYRIIKGFVNNYRW PTLRNAIVLPLWLT YYKLNTPSLELTE RDLIVLSGLRFYREF 525
RLPKKVDLEMIINDK AISPKNLIWTSFPR NYMPSHIQNYIEHEK LKFSSEDKSRVLEY YLRDNKFNECDLYNC 600
VVNQSYLNNPNHVS LTGKERELSVGRMFA MQPGMFRQVQILAEK MIAENILQFFPESLT RYGDLELQKILEKA 675
GTSNKSRYNDNYYN YISKCSIITLDSKFN QAFRYETSCICSDVL DELHGVQSLFSWLHL TIPHVITICTYRHAP 750
PYIGDHIVDLNNVDE QSGLYRYHMGGIEGW CQKLWTIEAISLLDL ISLKGKFSITALING DNQSIDISKPIRLME 825
GQTHAQADYLLALNS LKLLYKEYAGTGHKL KGTETYISRDMQFMS KTIQHNGVYYPASIK KVLPGVPWINTILDD 900
FKVSLESIGSLTQEL EYRGESLLCSLIFRN WLYNQJALQLKNHA LCNNKLYLDILKVLK HLKTTFFNLNDIDTAL 975
TLYMNLPMFLGGGDP NLLYRSFYRRTPDFL TEAIVHSVFILSYVT NHDLKOKLQDLSDDR LNKFLTCTIITFDKNP 1050
NAEFVTLMRDPQALG SERQAKITSEINRLA VTEVLSTAPNKIFSK SAQHYTTTEIDLNDI MNIEPTYPHGLRW 1125
YESLPFYKAEKIVNL ISGTSKIITNILEKTS AIDLTDIDRATENMR KNITLLIRILPLDCN RDKREILSMENLSIT 1200
ELSKYVREWSLSN IVGVTSPSITMTDI KYTSTISSGIIIEK YVNSLTRGERGPTK PMVGSSTQEKKTMPV 1275
YNROVLTKKORDQID LLAKLDMVYASIDNK DEFMEELSIGTLGLT MSWEQFTNVCNRI ILIPKLEIHLMKPP 1350
ASTPAYRTTNYHFDI SPINRILTEKYGDED IDIVFQNCISFGLSL HVNSNLI LAHKISDY FHNTYILSTNLAGHW 1425
IFTGDVDIHLKQVI QKQHMFLPKISLTQ YVELFSLNKTLSKGS HKGYGKAKLECDMNT SDLLCVLELIDSSYW 1500
ILIQLMKDSKGIFE KDWGEYITDHF IN LKVFNAYKTYLLCF TVCPWVWVNDYHPTH MKAILTYIDLVRMGL 1575
KMSKVFLQEKVIKY ILSQDASLHRVKGCH SFKLWFLKRLNVAEF SELENNYKLYHPTP ETLENILANPIKSND 1650
INIDRIHIKNKHFN DEFYTSNLFYINYNF SDNTHLLTKHIRIAN FPMVVIDRIIDHSGN TAKSNQLYTTTSHQI 1725
KKTLDNDYCIGKNVDS IMLPLSNKKLIKSS AMIRTNYSKQDLNLYL KISIEYILKDLKID PNCIAFEGAGNLL LRTVVELHPDIRYIY 1800
SLVHNSTSLYCMPLW HHINRFNFVSSTGC KISIEYILKDLKID LTIPTADATNNIHWS YLHIKFAEPISLFCV DAELSVTNWSKIII 1875
RSLKDCNDHSLPIEF LRLVNGHINIDYGEN LTIPTADATNNIHWS YLHIKFAEPISLFCV DAELSVTNWSKIII 1950
EWSKHVRKCKYCSSV NKCMLIVKYHAQDDI DFKLDNITILKTYVC LGSKLKGSEVYLVLT IGPANIFPVFNVVQN 2025
AKLILSRKTNFIMPK KADKESIDANIKSLI PFLCYPIITKKGINTA LSKLSKSVSGDILSY STAGRNEVFSNKLIN 2100
HKHMNLIKWFHVLN FRSTELNHNLYMVE STYPYLSLNSLT NEEKLIKITGSLY NFHNE 2165

C Cysteine residues
C Cysteine residues that were changed to valine or aspartic acid
C Cysteine residues deleted

FIG.11



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MDPIINGNSANVYL T DSYLKGVISFSECNA LGSYIFNGPYLKNDY TNLISRQNPLIEHMN LKKNITQSLISKYH 75
KGEIKLEPTYFQSL LMTYKSMTSSEQIAT TNLKKIIRRAIEIS DVKVYAILNKLGLKE KDKIKSNNGQEDNS 150
VITTIKDDILSAVK DNQSHLKADKNHSTK QRDITIKTLLKKLMC SMQHPSPWLIIHFNL YTKLNNILTQYRSNE 225
VKNHGFTLIDNQTL S GEFILNQYGCIVYH KELKRITVTYNNQFL TWKDISLSRLNVCLI TWISNCLNTLNKSLG 300
LRCGFNNVILTQFL YGDCILKLFHNEGFI IIEVEGFIMSLIN IIEEDQFRKREYNM LNNITDAANKAQKNL 375
LSRVCHTLIDKTVSD NIINGRWIILLSKFL KLIKLAGDNNLNLS ELYFLFRIFGHPMVD ERQAMDAVKINCNET 450
KFYLLSSLMLRGAF IYRIIKGFVNYYNRW PTLRNAIVPLRWLT YKLNTPSLELLETE RDLIVLSGLRFYREF 525
RLPKKVDLEMIINDK AISPKNLIWTSFPR NYMPSHIQNYIEHEK LKFSSEKSRVLEY YLRDNKFNEDLYNC 600
VWQSYLNNPNHVS LTGKERELSVGRMFA MQPGMFRQVQILAEK MIAENILQFPESLT RYGDLELQKILELKA 675
GISNKSRYNDNYNN YISKCSIIIDLSKN QAFRYETSCICSDVL DELHGVQSLFSWLHL TIPHVTTICTYRHAP 750
PYIGDHIVDLNNVDE QSGLYRYHMGGIEGW CQKLWTIEAISLLDL ISLKGFSITALING DNQSIDISKPIRLME 825
GQTHAQADYLLALNS LKLLYKEYAGIGHKL KGTETYISRDMQFMS KTIQHNGVYYPASIK KVLPGVPWINTILDD 900
FKVSLESIGSLTQEL EYRGESLLCSLIFRN VWLYNQIALQLKNHA LCNNKLYLDILKVLK HLKTTFFNLNDITAL 975
TLYMNLPMFLGGGDP NLLYRSFYRRTPDFL TEAIVHSVFILSYT NHDLDKQLQDLSDDR LNKFLTCIITFDKNP 1050
NAEFVTLMRDPQALG SERQAKITSEINRLA VTEVLSTAPNKIFSK SAQHYTTTTEIDLNDI MONIEPTYPHGLRW 1125
YESLPFYKAEKIVNL ISGTSITNILEKTS AIDLTIDDRATEMMR KNITLLIRILPLDCN RDKREILSMENLSIT 1200
ELSKYVRERSWSLSN IVGVTSPSIMYTMDI KYTTSTISSGIIIEK YNNSLTRGERGPTK PWVGSSTQEKTMPV 1275
YNRQVLTKKORDQID LLAKLDWVYASIDNK DEFMEELSIGTGLT YKAKKLFQPYLSVN YLHRLTVSSRPCFP 1350
ASIPAYRTTNYHFDI SPINRILTEKYGDED IDIVFQNCISFGLSL MSVVEQFTNVCPNRI ILIPKLNELHMKPP 1425
IFTGDVDIHKLKQVI QKQHMFLPKISLTQ YVELFSLNKTLSGSG HVNSNLI~~A~~HKISDY FHNTYILSTNLAGHW 1500
ILIIQLMKDSKGIFE KDWGEGYITDHMFN LKVFVNAYKTYLLCF HKGYGKAKLECDMNT SDLLCVLELIDSSVW 1575
KSMKVFLEQKVICY TISODASLHRVKGCH SFKLWFLKRLNVAEF TVCPWVNIDYHPH MKAILEYIDLV~~RM~~GL 1650
INDRIHIKNKHKN DEFYTSNLFYINYNF SDNTHLLTKHRIAN SELENNY~~N~~KL~~Y~~HPPT ETLENILANPIKSND 1725
KKTLDNYCIGKNVDS IMLPLSNKKLIKSS AMIRTNYSKQDLYNL FPMVVIDRIIDHSGN TAKSNQLYTTTSHQI 1800
SLVHNSTSLYCMPLW HHINRFNFVFSSTGC KISIEYILKDLKID PNCIAFIGEGAGNLL LRTVVELHPDIRYIY 1875
RSLKDCNDHSLPIEF LRLYNIGHINIDYGEN LTIPATDATNNIHS YLHIKFAEPI~~S~~LFVC DAELSVTVNWSKIII 1950
EMSKHVRCKYCSSV NKCMILIVKYHAQDDI DFKLDNITILKTYVC LGSKLKGSEVYLVT IGPANIFPVFN~~V~~VQN 2025
AKLILSR~~T~~KNFIMPK KADKESIDANIKSLI PELCYPI~~T~~KKGINTA LSKLSVSVSGDILSY SIAGRNEVFSNKLIN 2100
HKHMMILKWFNHVLN FRSTELN~~Y~~NHLYMVE STYPYLS~~E~~LLNSLTT NELKKLIKITGSLLY NFHNE 2165

Charged Clusters (Amino Acids that are underlined were changed to alanines)
Mutations in cpts-248/404
Mutation in cpts530

FIG.10



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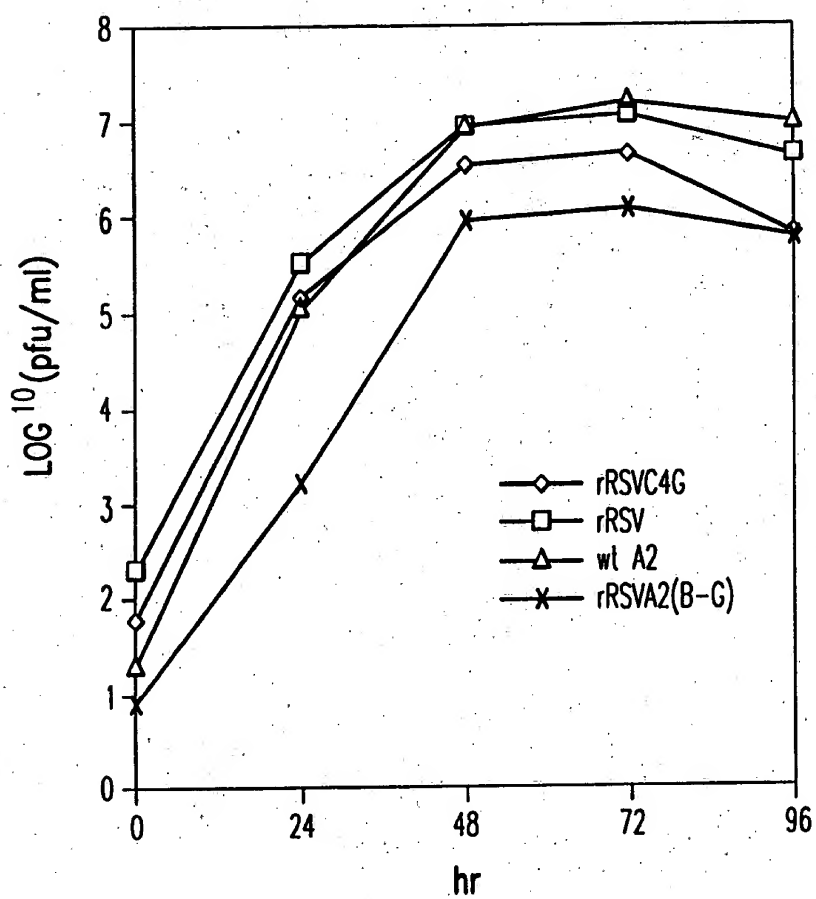


FIG.9



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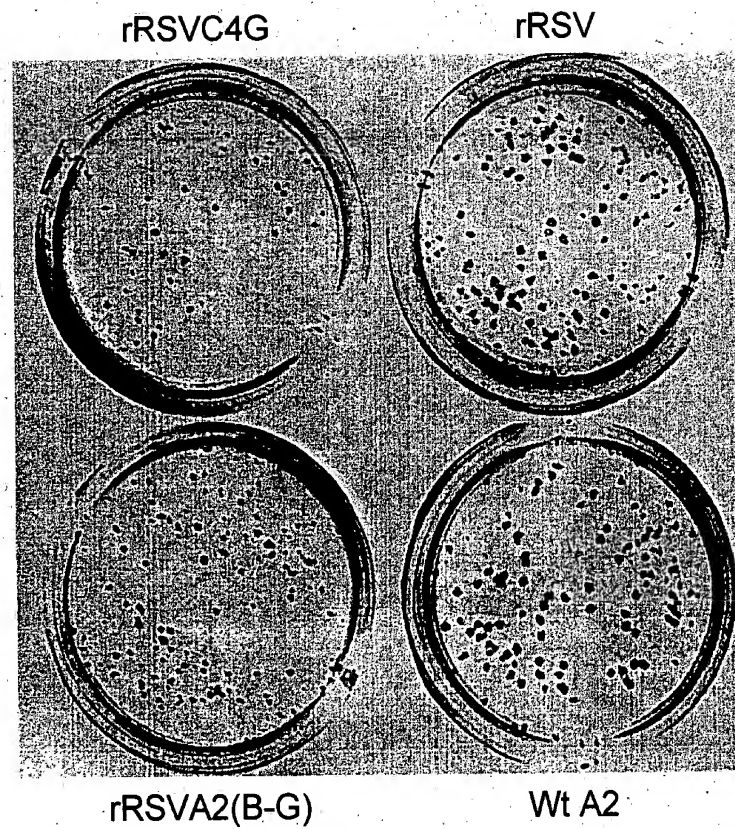


FIG.8



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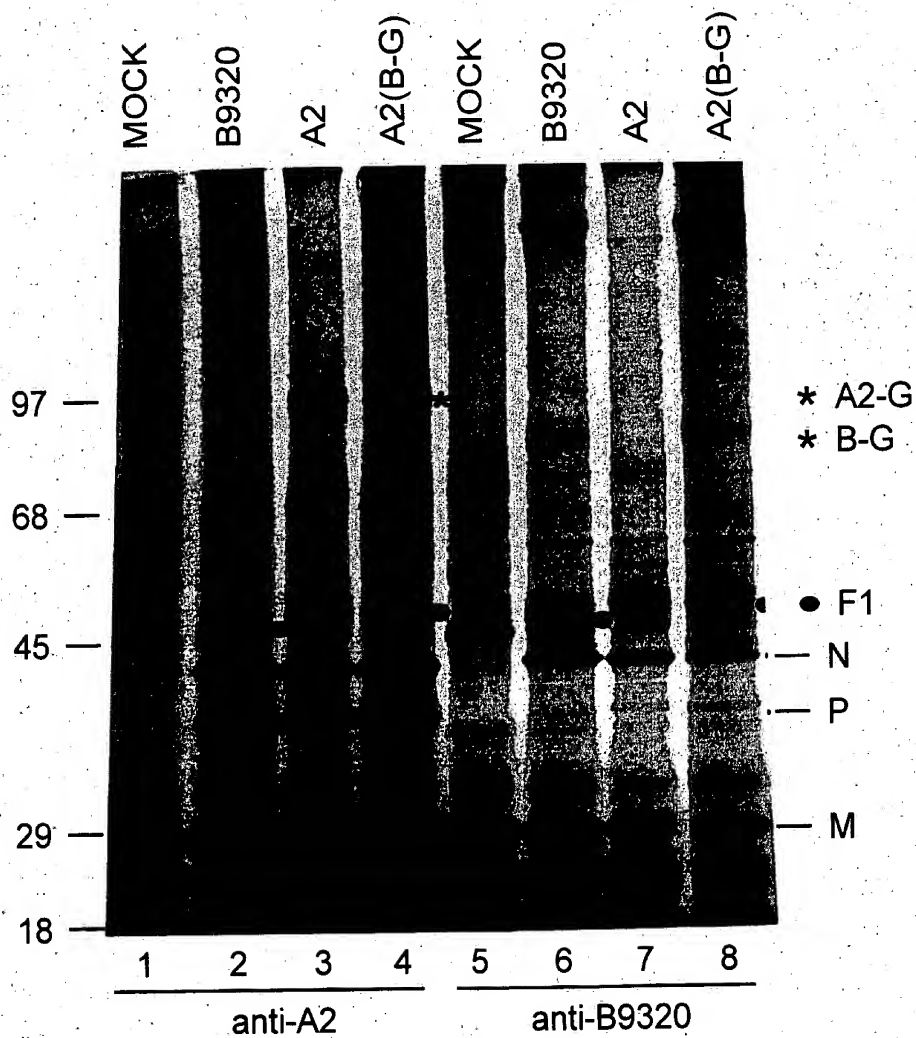
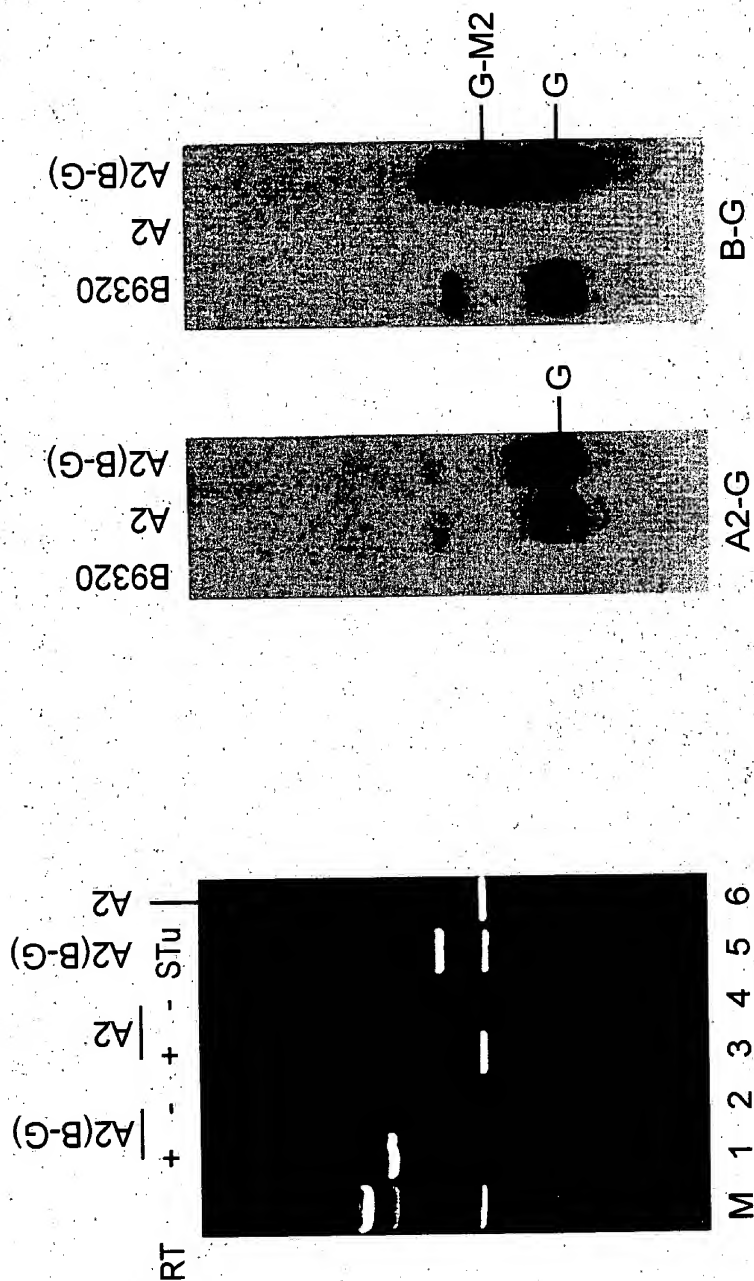


FIG. 7



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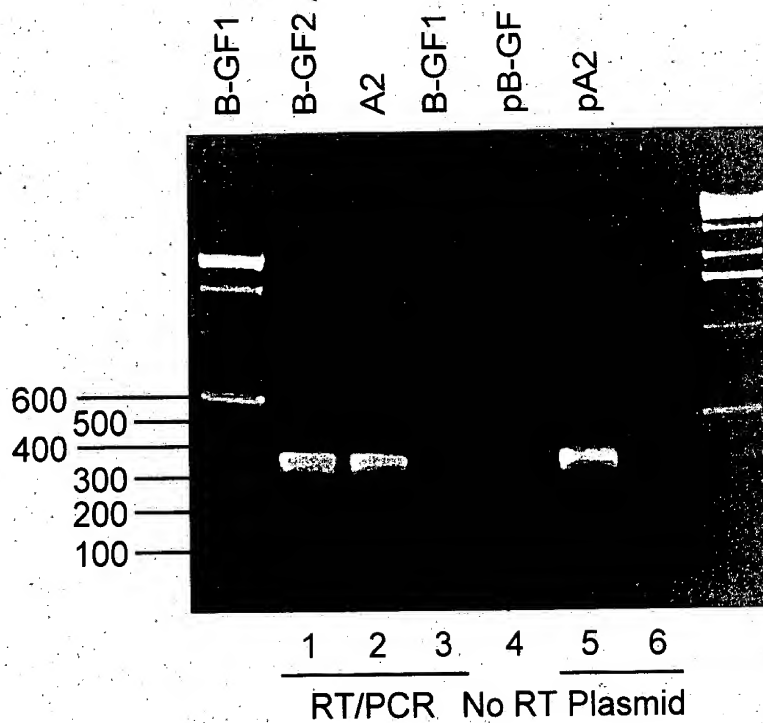


FIG.5



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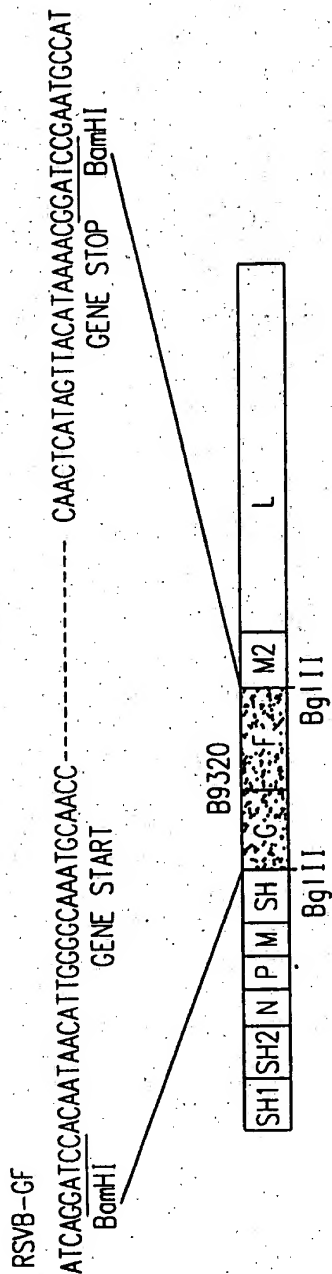


FIG. 4A

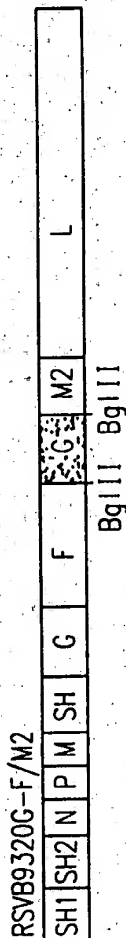


FIG. 4B

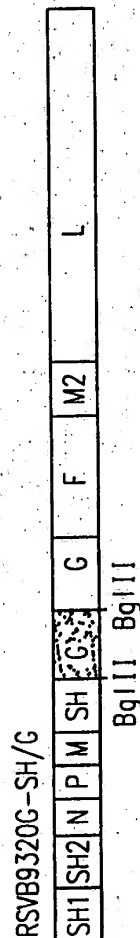
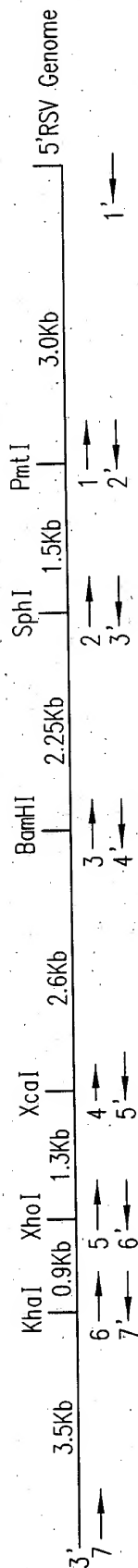


FIG. 4C



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Primer Sequences:

- | | | |
|----|----|----------------------|
| 1: | 5' | GTTTAAACACGTTGGTGAG |
| 2: | 5' | ACATATAGGCATGCACC |
| 3: | 5' | GACAAAATGGATCCCATI |
| 4: | 5' | TGGTTGGTATACAGTGT |
| 5: | 5' | TACCAAGAGCTCGAGTCA |
| 6: | 5' | TTTACCATATGCGCTAATGT |
| 7: | 5' | ACGCGAAAAAATGCGTACA |
| 1: | 5' | ACGAGAAAAAAGTGTCAA |
| 2: | 5' | CTCACCAGCTGTTAAAC |
| 3: | 5' | GGTGCATGCGCTATATGT |
| 4: | 5' | AATGGGATCCATTTTGTCC |
| 5: | 5' | AACACTGGTATACCAACCA |
| 6: | 5' | TGACTCGAGCTCTTGGTA |
| 7: | 5' | ACATTAGCCCATATGGTAAA |

FIG.3



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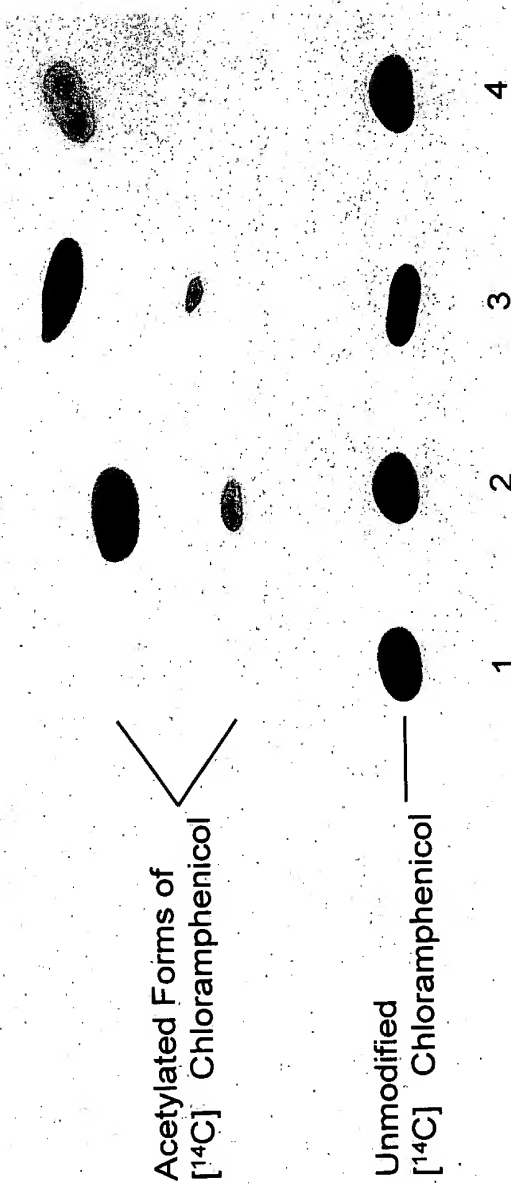


FIG.2



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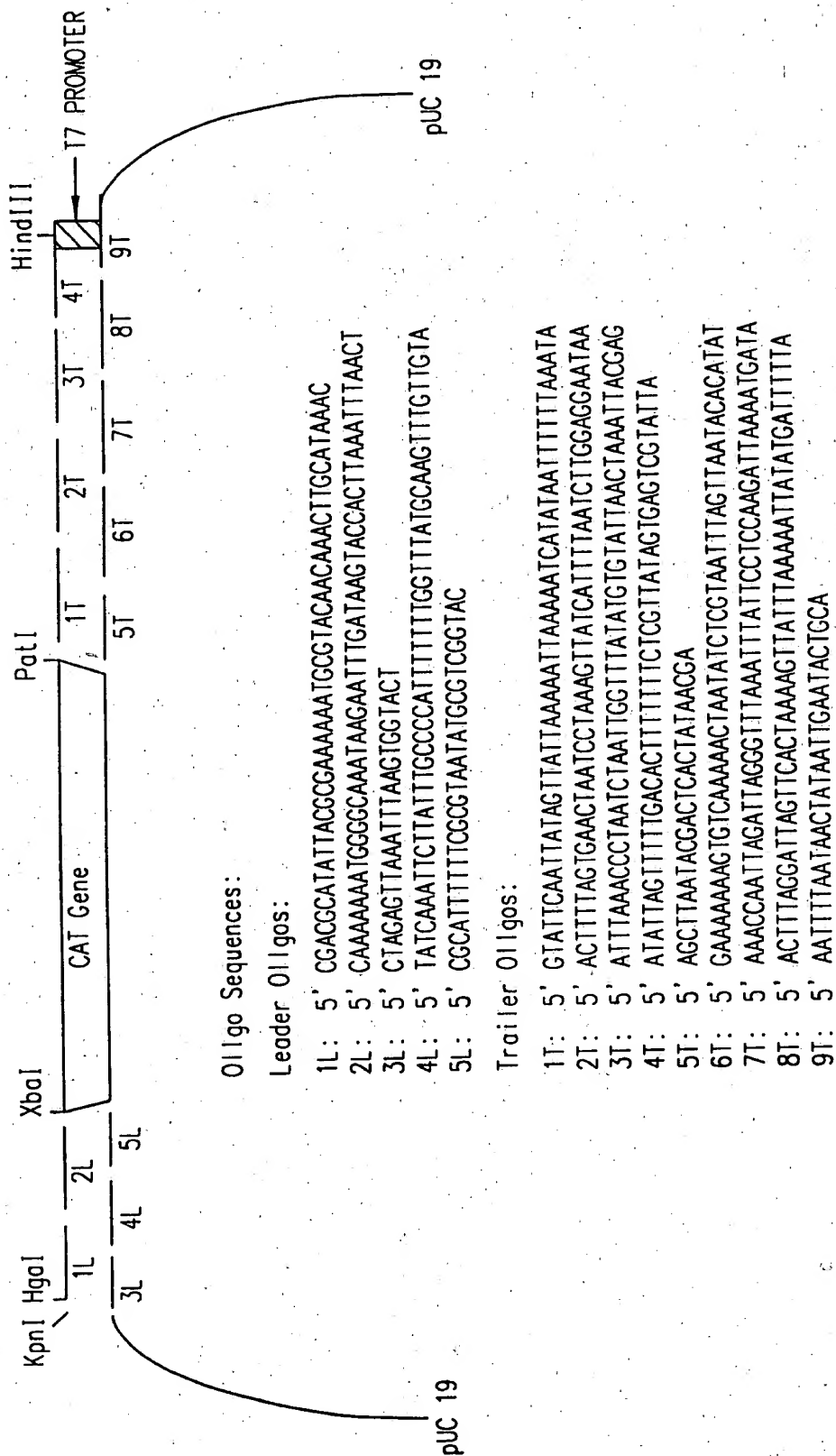


FIG.1